

Parasites and malformed frogs



Minnesota Pollution Control Agency

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Two papers recently published in the journal *Science* have led some scientists and journalists to assert that the cause of recent increases in malformed frogs is a type of naturally occurring parasitic flatworm called a “trematode.”

While the recently published research raises interesting questions, Minnesota Pollution Control Agency (MPCA) scientists, as well as a number of other researchers around the country, do not agree that parasites are the cause of what’s happening in Minnesota. MPCA staff point to the following facts to support their stand:

- Parasitologists researching frogs in Minnesota have not found a consistent association between malformed frogs and trematode parasite cysts. After studying hundreds of frogs, they have found that both normal and abnormal frogs can be heavily, lightly or not at all infected with trematodes. For example, in 1997, no malformed frogs had evidence of trematode parasites; this suggests that something other than a trematode has to be causing the malformations.
- *Ribeiroia*, the parasite identified by scientist Pieter Johnson in *Science* as having been present in all the Pacific

Coast treefrogs he studied in California, does not occur in frogs in Minnesota, North Dakota, South Dakota or southwestern Wisconsin.

- Johnson did find that another parasite, called *Alaria*, which is common in Minnesota, does not appear to cause frog malformations. *Alaria* is commonly found in both normal and malformed frogs here.
- The MPCA and its research partners continue to accumulate evidence that the cause for Minnesota’s frog malformations is most likely one or more chemical contaminants in the water. That National Institute of Environmental Health Sciences staff have shown that specific fractions of the water from affected Minnesota sites cause malformations in the laboratory suggests that parasites are not the cause of frog malformations. These fractions are being analyzed; in some cases, the chemicals identified are being synthesized so they can be tested for their ability to cause malformations in frogs.

Further, the multi-agency research team looking into Minnesota’s malformed frogs continues to investigate whether ultraviolet

radiation (UVB) from the sun is playing a role. For example, the way in which UVB may be converting chemicals in the environment by breaking them down into more toxic compounds. The recent news about parasites is interesting, and it does seem to show that parasites can cause some of the malformations being observed in some areas of the country. But in Minnesota, we have been looking at parasites among other possible causes all along. And many other researchers, including MPCA staff, have not found evidence to suggest that parasites are the primary cause for what is happening in Minnesota and

in other areas, including Canada. Contrary to some recent news reports, *the case is far from closed.*

For more information

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